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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,792	09/29/2003	Robert P. Mahoney	16426/09011	2994
27530 7590 05/24/2007 NELSON MULLINS RILEY & SCARBOROUGH, LLP 1320 MAIN STREET, 17TH FLOOR COLUMBIA, SC 29201			EXAMINER METZMAIER, DANIEL S	
			ART UNIT 1712	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/673,792	Applicant(s) MAHONEY ET AL.	
	Examiner Daniel S. Metzmaier	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-58 is/are pending in the application.
- 4a) Of the above claim(s) 21-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-5 and 8-20 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 February 2007 has been entered.

Response to Amendment

2. Applicants Associate Power of Attorney filed 07 February 2007 is noted. Attention is directed to MPEP 402.02, wherein the Associate Power of Attorney practice has been eliminated as of 25 June 2004.

Election/Restrictions

3. Applicant's election of the invention of the species corresponding to aniline/formaldehyde/cationic organic polymer such as cationic acrylamide in the reply filed on January 9, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim interpretation

4. Applicants claim a composition "comprising a polyarylamine polymer formed by the reaction of less than 2 moles of aldehyde per mole of aryl amine in the presence of

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an acid in an aqueous solution and an other flocculant and/or coagulant". The arylamines are selected from the group consisting of aniline, alkylanilines, phenylenediamines, aminophenols, methylenedianiline, homologues of methylenedianiline, and mixtures thereof. Please note the election above.

Applicants do not set forth distinct species in the claims for the "polyarylamine polymer", which is a flocculant, and "an other flocculant and/or coagulant". It is accepted that polymer reaction products are a blend of polymers having slightly different structures. Furthermore, the species of claim 20 includes organic flocculants, which would clearly include "polyarylamine polymer formed by the reaction of less than 2 moles of aldehyde per mole of aryl amine in the presence of an acid in an aqueous solution".

The compositions claimed are drafted in product-by-process format. Product-by-process claims are examined based on the product rather than the process steps in the process of making. The process steps are given patentable weight only to the extent said process steps necessarily impart structure to the product. Attention is directed to MPEP § 2113.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1-5 and 8-20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase, "an other flocculant and/or

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coagulant" lacks proper antecedent basis since the claims does not positively recite a flocculant and/or coagulant for "an other flocculant and/or coagulant" to be present. It is unclear what the flocculant and/or coagulant is other than. It is unclear how the polyarylamine polymer formed by the reaction of less than 2 moles of aldehyde per mole of aryl amine in the presence of an acid in an aqueous solution and an other flocculant and/or coagulant differ.

Claim 20 is indefinite since "the flocculant" is indefinite since "the polyarylamine polymer is a flocculant". It is unclear what applicants' reference refers.

It is suggested that in claim 1 applicants define the polyarylamine polymer as a flocculant and/or coagulant so that proper antecedent basis is provided to "the other flocculant". Basis may be found at least in paragraphs [0051] et seq, [0079] and the examples. Also, "the flocculant" in claim 20 should be defined as "the other flocculant".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 8-9, 16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Erikson, US 2,818,433 (cited IDS 5/7/2004). Erikson (columns 1 and 2) discloses making methylene dianilines by the reaction of 3 moles of aniline to 1 mole of formaldehyde, i.e., 0.33 moles of formaldehyde per mole of aniline. The molar ratio is less than 2 moles of aldehyde per mole of arylamine.

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Erikson (examples and column 4, lines 55-64) discloses the addition of sodium carbonate as well as metal salts, metal hydroxides and alkaline earth oxides and hydroxides. Please see the instant specification at paragraphs [0054] and [0055], which discloses the use of metal salts, metal hydroxides, and inorganic metal oxides as coagulants. Claim 20 is included herein because it may limit the flocculants of claim 1, but it does not limit the coagulants. Claim 20 reads on the use of the metal salts, metal hydroxides, and inorganic metal oxides in Erikson as inorganic coagulants.

9. Claims 1-5, 8-12, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Nalco, GB 2,095,224. Nalco (page 2, line 1 et seq, aniline and formaldehyde, HCl; and Table 1, wherein A and F have a ratio of 2 : 2, e.g., EDC-A-F ~ 2:1.6:1.6) discloses the products comprising the reaction products of aniline and formaldehyde added as flocculants to treat turbid waters. Since the polymers are flocculants as required by claim 1, said polymers read on the claimed "flocculants and/or coagulants".

Claim 20 is included in this rejection since the polymers disclosed in the Selvarajan et al reference are organic flocculants. During patent examination, the claims are given their broadest reasonable interpretation consistent with the specification. While applicants define preferred species, said species are alternatively claimed with the generic language, "organic flocculants", also set forth.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1-5 and 8-20 are rejected under 35 U.S.C. 103(a) as obvious over Nalco, GB 2,095,224, in view of Rey et al, US 5,240,509.

Nalco (examples and Table 2, wherein A and F have a ratio of 1 : 1, and the HCl is employed at 1 : 1 molar amount to the aniline) discloses the products comprising the reaction products of aniline and formaldehyde added as flocculants to treat turbid waters.

To the extent the Nalco differs from the claims in the combination of the Nalco polymers with an additional flocculant and/or coagulant, said combination would have been obvious to one having ordinary skill in the art at the time of the invention for the advantage of water clarification.

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Nalco (page 11, lines 28 et seq) discloses that comparison of the polyarylamine polymers to commercial flocculants and particularly points out melamine formaldehyde polymers, which the instantly claimed polyarylamine polymers are compared.

Rey et al discloses treating water with compositions comprising a combination of melamine-formaldehyde and an inorganic flocculant or nonionic flocculant, e.g., polymethacrylamide. Rey et al (column 6-7, lines 63-19) disclose the molar ratio of the melamine to formaldehyde is 1:1 to 1:6, preferably 1:1 to 1:3. Said ranges encompass and clearly envisage the claimed ratio of $1 : < 2$.

Regarding claim 16, see column 7, lines 20-26. Claims 17 and 19 are included herein since the ratio would read on the claims depending on how the melamine was attributed to the overlapping components (see above).

It is generally *prima facie* obvious to use in combination two or more ingredients that have previously been used separately for the same purpose in order to form a third composition useful for that same purpose. In re Kerkhoven, 626 F.2d 846, 205 USPQ 1069 (CCPA 1980); In re Pinten, 459 F.2d 1053, 173 USPQ 801 (CCPA 1972); In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971); In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960). As stated in Kerkhoven and Crockett, the idea of combining them flows logically from their having been individually taught in the prior art.

These references are combinable since they teach clarification of water employing related polymers. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ a combination of flocculant and/or

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coagulant with the polymers of Nalco as a point of law and/or for the advantage of a broader spectrum precipitation by known flocculant and/or coagulant agents.

Response to Arguments

13. Applicant's arguments filed 22 February 2007 have been fully considered but they are not persuasive.

14. Applicants (page 6) assert the Office points to claim 20, which is alleged to read on the polyarylamine polymers. The Office asserts the claim 20 recitation of organic flocculants reads on the claim 1 polyarylamine polymers and that each is indistinct from the other.

15. Applicants amendment to "an other flocculant and/or coagulant" has been addressed in the above rejection under 35 USC 112, 2nd paragraph.

16. Applicants' (pages 7 and 8) arguments regarding the Selvarajan et al reference lack of each and every element of the claim is unclear. As set forth in the rejection, the Selvarajan et al reference discloses polyarylamines resulting from the reaction of formaldehyde and aniline in a molar ratio of less than 2 : 1. The examples show molar ratios that read on those claimed.

Applicants' arguments regarding the further addition of a distinct flocculant and/or coagulant have not been deemed persuasive for at least the following reasons: the polyarylamine polymer and "other flocculant and/or coagulant" are indistinct as shown in claim 20, which set forth the flocculant and an organic flocculant. An "organic flocculant" as set forth in claim 20 reads on the polyarylamine polymers as set forth in claim 1.

While applicants assert that the polyarylamine polymers and "another flocculant" must be different, applicants have not set forth how said flocculants are different.

Reaction products are by their nature and the fact that batches thereof vary slightly in the product compound distribution are a combination of products. A review of claim 20 (organic flocculant) defines other flocculant in indistinct terms from the polyarylamine polymers.

17. Applicants (pages 8 and 9) assert that the Selvarajan et al reference nor the Rey et al teach or suggest the use of polymers other than melamine polymers is erroneous. The Selvarajan et al reference explicitly discloses polymers that are the reaction products of at least aniline and formaldehyde.

While Rey et al does disclose the use of melamine formaldehyde resins, Rey et al clearly teaches the conventional use of combinations of different flocculants, i.e., melamine-formaldehyde and nonionic flocculants, or combinations of flocculants with coagulants.

18. The Selvarajan et al reference has been withdrawn at this time as less pertinent than Nalco, GB 2,095,224, which corresponds to the grandparent application S/N 138,045 of the Selvarajan et al reference. Attention is directed to the priority data on Nalco, GB 2,095,224, item 30-33. Nalco clearly discloses reaction products of aniline with formaldehyde as flocculating agents.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM